

**REMARKS**

Claims 1, 5-8, 10, 13, 15, 20, 22, 23 and 26-33 are pending in this application.

Applicant appreciates the Office Action's indication that claims 4 and 5 contain allowable subject matter.

By this Amendment, claims 1, 5, 6, 10, 13, 15, 20 and 22 are amended. Claims 2-4, 9, 11, 12, 14, 16, 17, 21, 24 and 25 are canceled. New claims 28-33 are added.

In particular, claims 1 and 20 are amended to incorporate the allowable subject matter recited in claim 4 to place claims 1, 5-8, 10, 13, 15 and 20 in condition for allowance. New independent system claim 29 corresponds to amended method claim 1. Thus, claim 29, as well as new claims 30-33 depending therefrom, should also be in condition for allowance.

Independent claim 22 is amended to incorporate the subject matter recited in claim 25 and for better clarity. For the reasons discussed below, claim 22, as well as for claims 23, 26 and 27 depending therefrom, should be in condition for allowance. Furthermore, new claim 28 is a method claim that corresponds to the system claim 22. Thus, claim 28 should also be in condition for allowance.

Entry of the amendments is proper under 37 CFR §1.116 since the amendments: (a) place the application in condition for allowance for the reasons discussed herein; (b) do not raise any new issue requiring further search and/or consideration as the amendments amplify issues previously discussed throughout prosecution; and (c) place the application in better form for appeal, should an appeal be necessary. Entry of the amendments is thus respectfully requested.

The Office Action maintains the rejection of claim 21 under 35 U.S.C. §112, first paragraph. This rejection is moot in view of the cancellation of claim 21.

The Office Action maintains the rejection of claims 6 and 7 under 35 U.S.C. §112, second paragraph. Claim 6 is amended for better clarity, as the Examiner requested.

Accordingly, withdrawal of the rejection of claims 6 and 7 under 35 U.S.C. §112, second paragraph is respectfully requested.

The Office Action rejects claims 1-3, 8-17 and 20-27 under 35 U.S.C. §102(b) over U.S. Patent 6,445,415 to Olsson ("Olsson"); and rejects claims 6 and 7 under 35 U.S.C. §103(a) over Olsson in view of U.S. Patent 6,064,767 to Muir et al. ("Muir"). These rejections (1) are overcome with respect to claims 1, 5-8, 10, 13, 15 and 20 in view of the incorporation of the allowable subject matter originally recited in claim 4 into independent claims 1 and 20; (2) are moot with respect to canceled claims 2-4, 9, 11, 12, 14, 16, 17, 21, 24 and 25; and (3) are respectfully traversed with respect to claims 22, 23, 26 and 27.

Claim 22 is amended to recite "including in the second type of analysis both a focus criteria and operations which overrule the focus criterion proximate to the first set of pixels" for better clarity. This feature is a re-phrasing of subject matter recited in former claim 25. Olsson does not disclose or suggest this feature. In particular, Olsson does not disclose or suggest operations which overrule the focus criterion, or whether the overruling should be localized to a particular area. Olsson merely discloses satisfying a best focused criterion for surface pixels, but does not disclose or suggest that a focus criterion may need to be overruled when choosing between source images in a potential artifact region. Olsson does not disclose or suggest a method for overruling a focus criterion in a potential artifact region.

Furthermore, as recited in claim 22, it is the "surface processing portion" that suppresses image artifacts which correspond to out-of-focus edges or boundaries. See the specification at, for example, paragraphs 0108 and 0109. As explained in paragraph 0109, the surface processing portion suppresses the artifacts when determining a source image that is intended to provide a best focused surface. Olsson does not recognize that such an artifact problem may cause false focus values.

In particular, as discussed in the Office Action, Olsson only discloses using the "best focus" or "sharp areas" to pick images outside of "edge pixel" regions. However, such a technique is precisely what leads to the inclusion of the edge artifacts. For example, conventional types of "local" focus measures (as needed to select particular local pixels) would provide a higher value (typically of a contrast metric) for a strongly-shadowed or diffraction-producing out-of-focus edge than they would for a perfectly focused surface that is not strongly shadowed due to the shallow texture that it includes (resulting in primarily gray tones).

Olsson does not recognize the problems that arise when trying to choose between source images using a focus criterion in a potential artifact region. Olsson teaches only satisfying a best focus criteria for surface pixels, and does not teach any particular or refined method for overruling this criterion in a potential artifact region. This is because it contemplates macroscopic photographs (cereal boxes). Olsson is not sufficient for magnified images, where blurred edges may cover a significant portion of the image. In a magnified image, an edge is not simply a line a few pixels wide that runs through the image, as in macroscopic photographs. In a magnified image, an edge intensity-transition may be many pixels wide, and may exhibit artifacts, such as diffraction bands, near its extremities, etc. Diffraction bands, or other edge artifacts, may provide relatively light and dark pixels that may generate high values for focus metrics. For example, a focus metric typically, in effect, analyzes the separation and height of intensity peaks in an intensity histogram, assuming the strongest bimodal distribution of pixel intensities corresponds to best focus. Thus, "best focus" measures will frequently be fooled by edge artifacts in magnified images. Such problems are not addressed by any of the references.

For at least the above reasons, Olsson does not disclose or suggest the subject matter recited in claim 22, and claims 23, 26 and 27 depending therefrom. Accordingly, withdrawal of the rejection of claims 22, 23, 26 and 27 under 35 U.S.C. §102(b) is respectfully requested.

New claim 28 is believed to be patentable because, as discussed above, claim 28 is a method claim corresponding to the system recited in claim 22.

Claims 29-33 are believed to be patentable because, as discussed above, claim 29 is a system claim that corresponds to the allowable method claim 1.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the pending claims are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachments:

Petition for Extension of Time  
Amendment Transmittal

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